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ATOMIC THUNDER

THE MARALINGA STORY

ELIZABETH TYNAN

ATOMIC THUNDER

ELIZABETH TYNAN is an academic at the James Cook University Graduate Research School in Queensland. A former journalist, she has a background in print and electronic media; previously she was a reporter and subeditor at the ABC and a correspondent for *New Scientist* magazine. She has also worked as a writer and editor at CSIRO, the Australian National University and the Australian Institute of Marine Science. Born in South Australia, she has long been fascinated by Maralinga and in 2011 completed a PhD on aspects of British nuclear testing in Australia. She is also a freelance science writer and editor, and co-author of the textbook *Media and Journalism: New Approaches to Theory and Practice*, now in its third edition, and of *Communication for Business*.

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NEWSOUTH

A NewSouth book

Published by
NewSouth Publishing
University of New South Wales Press Ltd
University of New South Wales
Sydney NSW 2052
AUSTRALIA
newsouthpublishing.com

© Elizabeth Tynan 2016
First published 2016

10 9 8 7 6 5 4 3 2 1

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National Library of Australia
Cataloguing-in-Publication entry

Creator: Tynan, Elizabeth, author.
Title: Atomic Thunder: The Maralinga story / Elizabeth Tynan.
ISBN: 9781742234281 (paperback)
9781742242446 (ebook)
9781742247830 (ePDF)

Notes: Includes index.

Subjects: Nuclear weapons – Great Britain – Testing.
Aboriginal Australians, Treatment of – South Australia – Maralinga.
Radioactive pollution – South Australia – Maralinga.
Cold War.
Australia – Politics and government – 1945–1965.
Great Britain – Politics and government – 1945–1964.
Maralinga (SA).

Dewey Number: 994.05

Design Josephine Pajor-Markus

Cover design Blue Cork

Cover images Landscape at Maralinga, 2007: Wayne England/Wikimedia Commons. John L Stanier at Maralinga in protective clothing, with a camera also protected in a plastic cover [detail], c. 1950s: National Archives of Australia A6457, P214.

Printer Griffin Press.

Extract from 'The Boy in the Bubble', p. 11: Words by Paul Simon. Music by Paul Simon & Forere Motlohele. © Copyright 1986 Paul Simon (BMI). All rights reserved. International copyright secured. Used by permission of Music Sales Limited.

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To the future.
May it learn something from the past.

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Acknowledgments

As a bookish introvert, I enjoy nothing more than the challenge of living inside a big writing project. I have lived inside this one for quite a while. I haven't been entirely on my own, though. In fact, without the magnificent contribution of a number of people, there would be no book. I hasten to add that while I have been greatly assisted by some excellent individuals, if there are any errors in this book they are mine alone.

My incomparable mother, Rosemary Jennings, has been central to the creation of this book. Her experience as a history researcher, including work for the *Australian Dictionary of Biography*, honed her acute historical brain and great love of history. She is also naturally pedantic and has directed this superpower onto my work. She has picked up errors that I have not been able to see, and she has been a sounding board for my ideas. She is one of the few people who will allow me to talk at length about Maralinga without suddenly remembering that she has to be somewhere else. I am grateful to have been able to do that, because sometimes the ideas just want to come out, and having someone willing to receive them has been inexpressibly important to me.

I would also like to thank radiation scientists and Maralinga experts Dr Geoff Williams and Mr Peter Burns. My visit to Geoff and Peter at the Australian Radiation Protection and Nuclear Safety Authority in Melbourne in 2004 planted the seed of an idea that later became my PhD thesis and still later became this book. I never knew that the Maralinga story was so rich and fascinating and terrible until I spent those crucial, life-changing hours in the presence of such knowledgeable scientists. Both Geoff and Peter have been kind enough to read parts of the manuscript to check for factual accuracy.

Geoff also introduced me to Graeme Newgreen, who worked at Maralinga during the tests, and Graeme kindly read part of the text too.

Paul Malone was one of the intrepid investigative journalists who took on the Maralinga story when it became an important media event in the 1980s. His work with Howard Conkey at the *Canberra Times* revealed a complex story that he worked meticulously to uncover. He has generously given me access to his extensive archive of original documents relating to the nuclear tests in Australia, and I have drawn upon them gratefully and at length.

One of Australia's best journalists, Brian Toohey, broke the story about plutonium contamination in a series of stories in the *Financial Review* in 1978. He kindly answered my questions about his Maralinga reporting when I put them to him while researching my PhD. I have quoted those answers in this book as well, to help provide some insights into the era of uncovering that he did so much to initiate. I acknowledge the considerable contribution of the late Ian Anderson, a science journalist of great talent and influence who was taken too soon. His work in the early 1990s in uncovering the true extent of plutonium contamination caused by Vixen B at Maralinga was an object lesson in why investigative journalism is essential in a democracy. I was privileged to work with him briefly at *New Scientist*; he taught me so much. His widow, Dr Robin Anderson, generously gave me access to parts of Ian's personal archive in the early stages of my PhD research.

I gratefully acknowledge my employer, James Cook University. Part of the work involved in this book was carried out during a period of study leave in 2014. I particularly acknowledge the dean of graduate studies, Distinguished Professor Helene Marsh, who has always shown heartening and much-appreciated confidence in my abilities. Thank you also to linguists extraordinaire Professor Alexandra Aikhenvald and Professor Robert Dixon at James Cook University, who did the detective work that tracked down the origin of the word Maralinga.

Acknowledgments

This book had its genesis in the work I did for my doctorate. I would like to thank and acknowledge my supervisor at the Australian National University (ANU), Professor Sue Stocklmayer, and also Dr Will J Grant, both at the National Centre for the Public Awareness of Science. My PhD was a life-changing experience, and I thank them for their role in it.

My dear friend Susan Davies, who lives in New York and has been away for so long, will always be close to my heart. There truly is no friend like one's oldest friend. I am fortunate all-round in the quality of my friends. Special mentions to Melissa Lyne, Nicola Goc, George Roberts, Nadine Marshall, Marilyn Chalkley and Annie Warburton, who have all in a multitude of ways enriched my life.

My family is kind, loving and supportive, and I care for them deeply. With gratitude and love, I thank Dad (Frank), Inta, Meredith, Andrew, Narelle, Sophie and Alexander. As a long-time ANU employee, Dad knew some of the key players in this story and was able to share some tales. Also, my grandfather, Dad's dad, worked for a while with Len Beadell, and Dad has helped me source material about Beadell's exploits. I also thank my wider family – my delightful aunts, uncles and cousins – and mention in particular my dear Uncle Glen, who has always taken a keen interest in my Maralinga research. Thanks also to Brett.

An important marker of a robust democracy is ready access to a nation's documents. I have made extensive use of the National Archives of Australia and the National Archives of the United Kingdom and have always found the experience rewarding and, indeed, rather exciting. There's nothing like a set of old documents to get the blood racing. Sincere thanks to the staff at both archives for assisting me so ably.

I am indebted to Phillipa McGuinness at NewSouth Publishing, who saw promise in the Maralinga story and decided to take a chance on me. Thanks also to the always friendly and efficient Emma Driver, who has helped guide me through the process of becoming a NewSouth author. The term eagle-eyed barely begins

to cover the talents of the editor Victoria Chance, who has been dogged and meticulous in editing this manuscript. Her highly professional work has made a huge difference to the quality of the final product. Thanks also to the proofreader Penny Mansley and the indexer Trevor Matthews, who have carried out their detailed work with admirable diligence.

I can't imagine life without the various animals who have filled my heart. I mention in particular Higgy, Minnie, Palmee, Samira, Ramona, Adelaide, Elvis, Lukey, Fred and Agnes. My heart still aches for those no longer with me, in particular Monty, Ava, Miranda, Bobby, Lily, Rosie, Wilfred and Wilma.

The Maralinga story is a vast, sprawling saga. This book is an attempt to provide a concise overview that will be of interest to the general reader, as well as offering a fresh perspective based upon years of analysis of the many diverse forms of evidence available. Many people have a profound stake in the events at all three test sites, most especially Indigenous people and service personnel (the 'nuclear veterans'). My book does not seek to delve into the fine detail of the grievances of either of these groups, not because their grievances are irrelevant or uninteresting, but simply because to do so would make this a different book altogether. I have instead sought to broaden the view to show Maralinga in its historical and scientific context. What an honour it is to write such a story.

Abbreviations

ABC	Australian Broadcasting Commission (from 1983, Corporation)
AERE	Atomic Energy Research Establishment (UK)
AIRAC	Australian Ionising Radiation Advisory Council
ALP	Australian Labor Party
ANU	Australian National University
ARL	Australian Radiation Laboratory
ARPANSA	Australian Radiation Protection and Nuclear Safety Agency
ASIO	Australian Security Intelligence Organisation
AWRE	Atomic Weapons Research Establishment (UK)
AWTSC	Atomic Weapons Tests Safety Committee
CRO	Commonwealth Relations Office
CSIR	Council for Scientific and Industrial Research
CSIRO	Commonwealth Scientific and Industrial Research Organisation
HER	High Explosive Research (UK)
IAEA	International Atomic Energy Agency
LRWE	Long Range Weapons Establishment
MARTAC	Maralinga Rehabilitation Technical Advisory Committee
MAUD	Military Application of Uranium Detonation (UK)
MEP	Maralinga Experimental Programme (UK)
RAAF	Royal Australian Air Force
RADSUR	Radiation Survey (UK)
RAF	Royal Air Force (UK)
TAG	Technical Assessment Group
TNT	trinitrotoluene

Atomic Thunder

UK	United Kingdom
US	United States
USSR	Union of Soviet Socialist Republics

Measurements

During the period of the British nuclear tests, Australia used imperial measurements, and many of the quotes in the book reflect this.

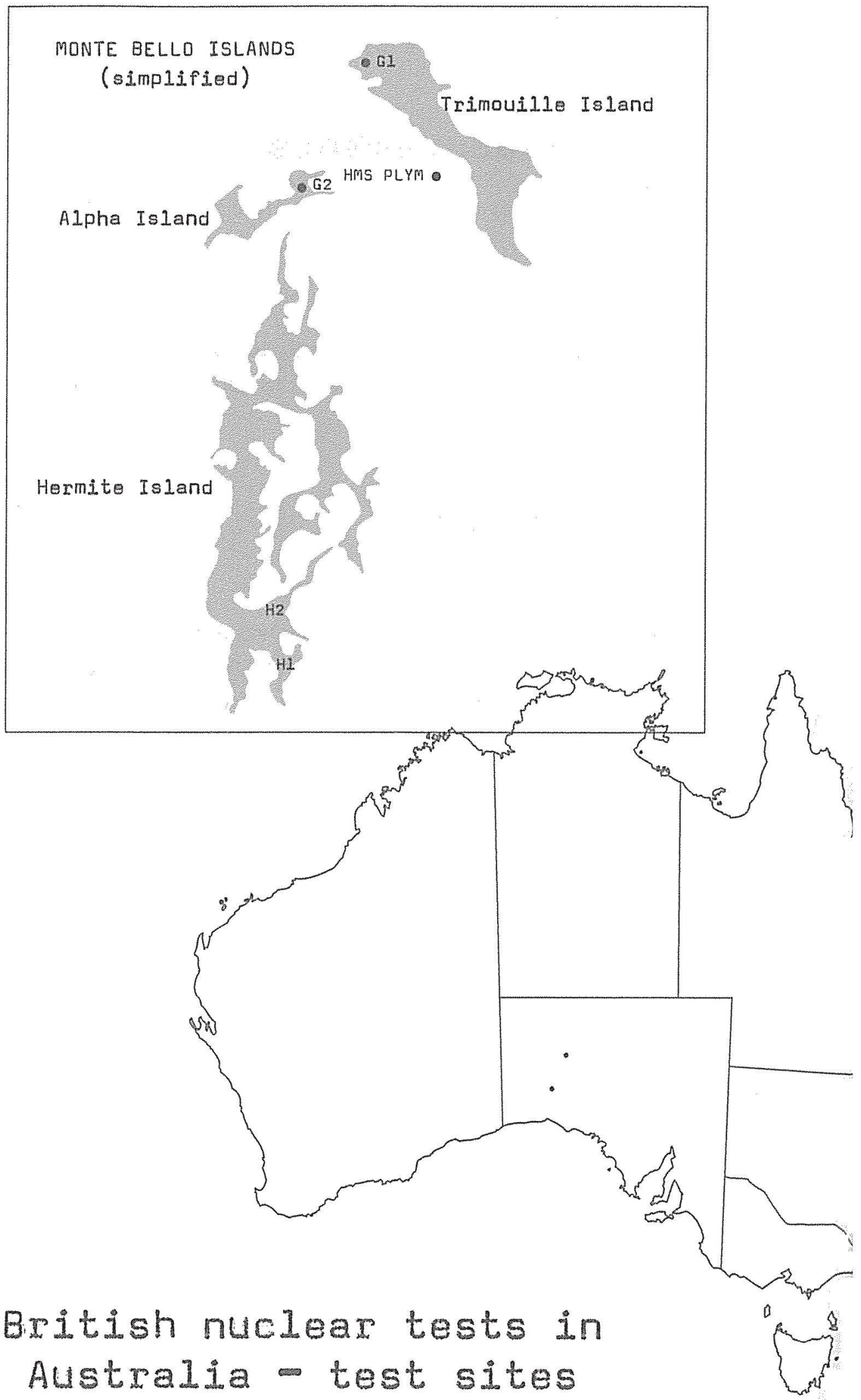
1 inch = 2.5 centimetres

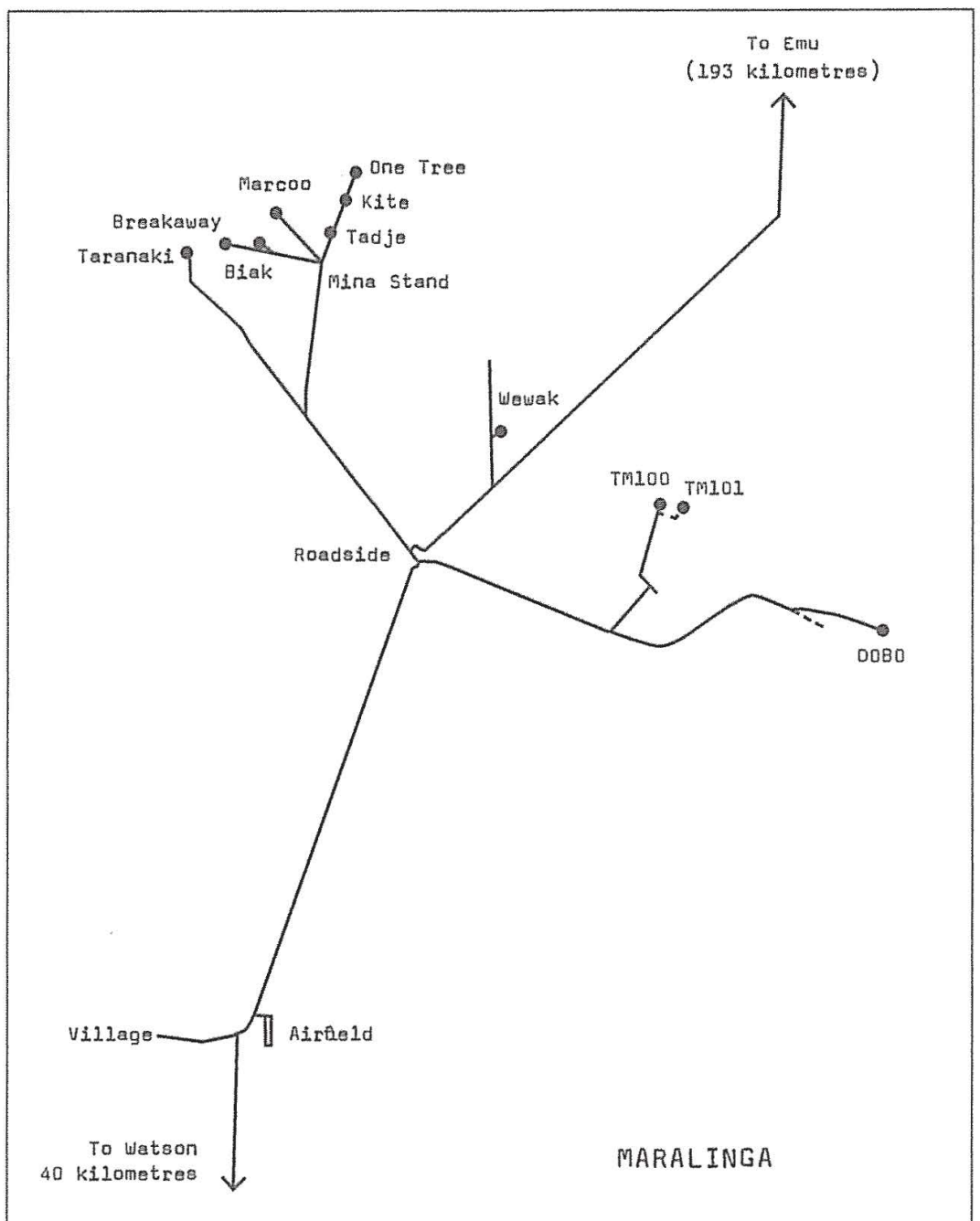
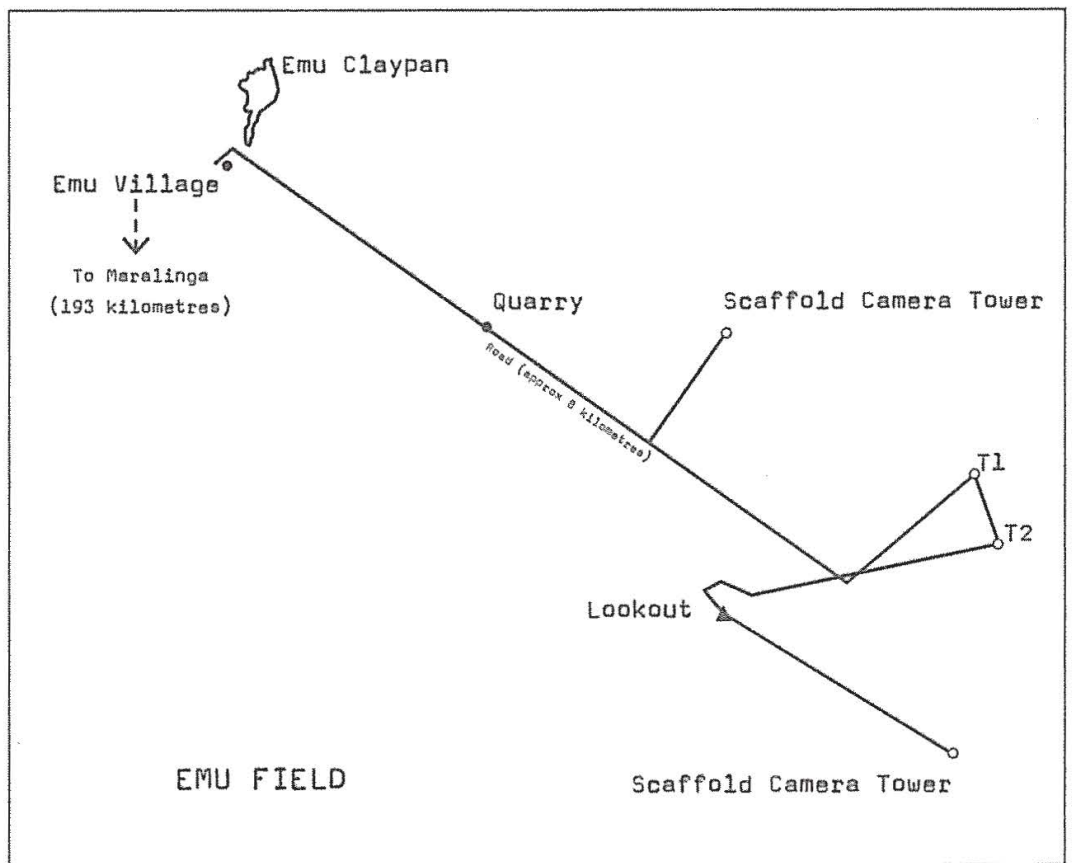
1 mile = 1.6 kilometres

1 pound = 0.45 kilograms

1 ton = 0.907 tonnes

Also, until February 1966, Australian currency was pounds, shillings and pence. At the time of the changeover, one Australian pound equalled two Australian dollars.





Prologue

Maralinga. The name rolls easily off the tongue. It is a rather beautiful name, an Aboriginal word, but fittingly, given the colonialism at the heart of the Maralinga story, one not anchored in the place itself. The Indigenous people who lived in this part of South Australia for tens of thousands of years never spoke this word until it was transplanted there by white men. The name, from an extinct Aboriginal language called Garik, was officially adopted at a meeting of six Australian public servants and senior military personnel, the Research and Development Branch of the Commonwealth Department of Supply. At 10 am sharp on Wednesday 25 November 1953, long-time chief scientist for the department, the New Zealand-born Alan Butement, tabled it as the first order of business. He almost certainly got the name from anthropologists working in the Northern Territory, although the meeting minutes do not record that detail.

The new name met with the approval of the British ‘nuclear elite’, the top nuclear scientists from the Atomic Weapons Research Establishment (AWRE) at Aldermaston in southeast England. Charged with finding the right place to test British nuclear weapons, these men appropriated thousands of square kilometres of South Australian desert known to surveyors simply as X300. They turned a pristine Australian wilderness into one of the most contaminated places on earth in the pursuit of technological and geopolitical might for the United Kingdom (UK).

The nuclear tests started in October 1952 at Monte Bello Islands off the coast of Western Australia and moved briefly to a remote South Australian site called Emu Field in 1953. Even before they went to Emu, though, the scientists knew that it was not suitable for

the expansive permanent location they wanted. Instead, Maralinga, not far to the south of Emu, was destined to be the final choice. A formal agreement to carry out atomic tests at Maralinga was signed by the British and Australian governments on 7 March 1956. The first major bomb tests got underway there six months later.

The word Maralinga means 'thunder' in Garik, a language once spoken by the people who lived around Port Essington. This short-lived British settlement, established in the early nineteenth century on the Cobourg Peninsula across from Darwin, today lies in ruins. Maralinga was one of a handful of Garik words recorded by anthropologists working in the territory; there are no known speakers today. Those who bound the word forever to the wildly beautiful red dust land in South Australia knew that it was exactly the right name. The thunder that rolled across the plains was an ominous sound that heralded a new leading player in a nuclear-armed and infinitely more dangerous world.

The British nuclear tests in Australia had their direct beginnings in the Manhattan Project. This secret wartime project created the atomic bombs dropped on the Japanese cities of Hiroshima and Nagasaki in August 1945, effectively ending the war in the Pacific. The project harboured atomic physicist spies, and their uncovering cleaved the alliance between Britain and the United States (US) that had produced the bombs. The British then turned their eyes towards the vast open spaces of Australia.

Indirectly, historical forces had long been conspiring to lead British scientists to the Australian outback. The British colonisation of Australia in the eighteenth century may well be the true starting point for this saga. The English explorer James Cook first planted the Union Jack on Australian soil in April 1770, during his epic scientific expedition. Soon after, the entire continent was absorbed into the British Empire, where it remained until 1901. This created a power differential in the relationship between the two lands. Even after Australia became a sovereign nation, strong echoes of its colonial past rang down through the generations, including the years

when the British conducted nuclear tests on Australian territory between 1952 and 1963.

A subspecies of the colonialism that first claimed this island continent pervades this story. After World War II, as Britain's remaining colonies achieved independence one by one, its days as the world's biggest imperial power petered out. Colonialism as a broader force receded, but a new form emerged: nuclear colonialism. The term was coined recently – in 1992 – by the US anti-nuclear weapons testing activist Jennifer Viereck, who described it as 'the taking (or destruction) of other peoples' natural resources, lands, and well-being for one's own, in the furtherance of nuclear development'. The term – with its connotations of dominance and imperial superiority – fits the experience in Australia. When the call came from 'home', Robert Menzies, prime minister at the time, did not hesitate: Australian territory was immediately put at the disposal of the British, initially without any democratic niceties. In effect, the democratically elected prime minister of Australia decided to 'lend Australia to the United Kingdom' without the consent of its people. This, pointedly, was the first of the 201 conclusions of the Royal Commission into British Nuclear Tests in Australia, chaired by James McClelland, in the mid-1980s.

A phone call was all it took. The UK prime minister Clement Attlee rang Menzies in September 1950 after the British high commissioner in Canberra had passed on a top-secret message on 16 September. The message, from Attlee to Menzies, said in part, 'I am telegraphing to you now to ask first whether the Australian Government would be prepared in principle to agree that the first United Kingdom atomic weapon should be tested in Australian territory and secondly, if so, whether they would agree to our experts making a detailed reconnaissance of the Monte Bello Islands so that a firm decision can be taken on their suitability'. Menzies agreed without hesitation. The matter was not presented to Cabinet. The test date was to be sometime in 1952, as British scientists were scrambling to finalise construction of a workable nuclear device at Aldermaston.

The British surveyed the remote Monte Bello Islands under the codename Epicure, the first of many codenames, to ensure that the area would be suitable to test Britain's first ever atomic weapon. The agreement stitched up during that phone call still resonates.

Maralinga was neither Australia's nor Britain's finest hour. Both countries behaved at times with questionable ethics and little regard for future consequences. Later investigations revealed that insufficient safeguards were in place to protect people and land, even allowing for the less developed understanding of matters atomic back then. The harm done to the Indigenous population was substantial and shameful. The test authorities said openly at the time that there was 'nothing to suffer damage except spinifex and mulga' at Maralinga, despite the long and complex history of Indigenous presence there. One top-secret document prepared by the Australian minister for Supply Howard Beale when planning for the permanent test range said, 'Revocation of an existing aborigines' reserve would be involved ... this could be achieved without undue difficulty as the area has not been used by aborigines for some years'. This statement was false.

Most of the events at Maralinga and the other nuclear test sites were top-secret. Today it may come as a surprise to the average person that Australia had a central place in the development of the atomic bomb. School history curricula tend not to mention this fact. Yet, while this country sacrificed much to assist Britain's aspirations to become a nuclear nation, we did not benefit from it. The evidence suggests the opposite. The UK became the world's third atomic power, after the US and the Union of Soviet Socialist Republics (USSR), while Australia was left with a radioactive contamination problem that cost tens of millions of dollars to mitigate. The report of the Royal Commission in the mid-1980s succinctly described Menzies' actions in making Australian territory available without strong safeguards as both 'grovelling' and 'insouciant' – two words that capture perfectly the tone of controlled anger displayed throughout the report. The terms of the

agreement struck between Australia and Britain, loosely worded as they were, were not to Australia's advantage in either word or spirit. It is hard to imagine another country accepting the same conditions. Australia accepted them without any particularly strong overt pressure from the UK and even volunteered to bear part of the cost, which the British had not requested. The weight of colonial history provided the true pressure, reflecting how Australia saw itself in relation to Britain at that time.

Canada, suggested in the late 1940s as a possible test location for British bombs, was in many ways a more logical ally in nuclear weapons development. Like Australia, and in contrast to the UK, it had large swathes of lightly populated territory. Unlike Australia, it also had a well-developed research effort in the field and existing collaborations. Canada had a formal nuclear technology development relationship with the US and Britain – the ABC partnership – as part of the Manhattan Project. This gave Canada far higher status than Australia in the world's small nuclear club, a status that would have ensured Canada a greater share of the fruits of the nuclear weapons research had the tests gone ahead there. Indeed, the British dangled the carrot of detailed weapons design information in front of the Canadians. Later, in 1963, Canada even began its own nuclear weapons development program before abandoning it and divesting itself of its permanently stationed nuclear weapons of US origin in 1984.

The UK couldn't have access to the US test sites, so Canada was the next choice. The British surveyed seven sites there and favoured the remote northerly port of Churchill in Hudson Bay, part of the Province of Manitoba. However, when the Canadians learned that the British intended to conduct at least 12 major atomic bomb tests that would severely contaminate a new 450-metre circle each time, they swiftly declined. The Canadians were a little too concerned to protect their own interests.

Australia did not have the same standing in British eyes as Canada. Although both countries were former colonies, Australia

had no form at all in the field. Until the postwar era, the best Australian physicists went abroad to do their research, including the great Australian physicist Mark Oliphant, who launched his formidable career at Cambridge's legendary Cavendish Laboratory as a student of nuclear physics pioneer Ernest Rutherford. Australian nuclear physics research really got started when Oliphant, back in Australia, lured Ernest Titterton from the UK in the early 1950s. Titterton set up the Department of Nuclear Physics at Canberra's fledgling Australian National University (ANU). The British atomic weapons test plan was being formulated at the time, and Titterton is prominent in the Maralinga story. The two men fell out though. Oliphant, one of the world's most eminent scientists, was vociferously opposed to scientific secrecy and was considered by the Americans to be a security risk. The test authorities shunned him when he later became a critic of the nuclear tests in Australia.

This story is not as simple as the oppression of a former colony by a fading imperial power, however. Australia entered into the agreement with considerable ambitions of its own. The Menzies government had its reasons, not all of them sycophantic. One incentive was to maximise the value of the country's newly discovered and extensive uranium resources. Uranium was the raw material for both atomic weaponry and atomic energy, but few countries in the world possessed it in such large and accessible quantities. Second, the Australian Government believed that if nuclear war loomed, assisting Britain with its nuclear program would help guarantee Australia's own protection by Britain at least, and possibly the US as well. A third reason was that in the 1950s, Australia toyed with the idea of both civilian nuclear power and its own nuclear weaponry. Who better to learn from than the British (especially as the US would not countenance the idea)? But none of these ulterior motives came to fruition.

This story of many parts is also a Cold War tale. After the end of World War II, the British wartime leader Winston Churchill declared that an 'iron curtain' had descended across Europe. This ideological divide – between the West on one side and the communist nations

headed by the USSR on the other – soon sparked an arms race based upon the devastating new weapons demonstrated in Japan. The Soviet Union, with considerable input from the atomic spies who feature later in this book, tested its own atomic bomb just four years later, in 1949.

The Cold War brought secrecy and suspicion into the dealings not just between enemies, but also between allies. In Australia, the Cold War ruptured security relationships with both Britain and the US. A spy ring uncovered after the war at the Soviet Embassy in Canberra implicated a number of Australian public servants (although no charges were laid). The British rocket tests at Woomera, also in the South Australian desert, were temporarily suspended because of these security concerns. Australia was forced to convince both the UK and the US that it could keep security secrets. Australia's domestic spy service, the Australian Security Intelligence Organisation (ASIO), was established in 1949 during the dying days of the Chifley Labor government, under explicit pressure from the two allies. Despite the advent of ASIO, and the even more shadowy Australian Secret Intelligence Service in 1952, neither Britain nor the US really trusted Australia. In the end, Britain provided no nuclear secrets to Australia, and Australia was peculiarly reluctant to ask for them, even when they were being gathered on its own soil.

This is a story of scientific progress as well, and particularly the relatively new science of nuclear physics. Many of the main protagonists in the Maralinga tale were physicists. Some were well inside the Maralinga tent, such as the head of the series, William Penney, and the scientist often said to have been 'planted on Menzies', Ernest Titterton. Titterton was famously characterised as a Dr Strangelove figure, and his reputation was trashed during the McClelland Royal Commission. Penney's reputation came out the other side rather better, though still damaged by the cloak and dagger. Other scientists, particularly the Australians Mark Oliphant and Hedley Marston, were on the outer. They had grave doubts about the nuclear tests in Australia and paid a professional price for raising them.

The science itself is amazing. A once largely worthless heavy element, uranium, had suddenly and dramatically revealed its hidden explosive energy potential at the beginning of World War II. Physicists working in Britain recognised the significance of 'splitting the atom' and developed practical ideas about how to fashion an explosive device. They handed these over to the US Manhattan Project. Within six years, the basic physics that had brought to light hitherto unknown capacities in uranium had resulted in a bomb powered by uranium being dropped on Hiroshima. The bomb dropped on Nagasaki three days later was powered by plutonium, a step-up in technology. Plutonium, a most unnatural and dangerous material, is one of the most important things to understand about Maralinga, because when plutonium fell to earth there it changed the landscape forever.

Australia's media underwent a profound transition during the decades of this story. The articles published in the Australian media at the time of the nuclear tests, and particularly in the early years, were often deferential to Great Britain, overtly patriotic, uncritical of atomic weaponry or actively in favour of it, focused almost exclusively on storylines provided by official information, and lacking scientific detail or analysis. Almost always, statements from test personnel and from the Australian Government immediately allayed any safety concerns raised in these stories. Many of these assurances were shown later to be unfounded. A few contemporary stories were critical of delays to scheduled tests or raised questions about the safety of Indigenous people in the area and the cost-effectiveness of the Maralinga facility. Some were apparently motivated by ideological opposition to the federal government. But the general thrust of most stories and editorials was support of the test series and the nuclear ambitions that underpinned it. The high-profile scientists involved, such as Penney and Titterton, were not subjected to scrutiny.

This began to change in the mid-1970s with a series of stories characterised by a productive scepticism towards the governments

involved in the testing, a far higher level of scientific literacy and insight, a diversity of sources and a willingness to confront the government with evidence of untruth and cover-up. With hindsight both the initial phase of secrecy and cover-up and the later uncovering seem inevitable. In fact, the same information controls were in operation in the late 1970s, and the Coalition government of the time, under Malcolm Fraser, was no keener to reveal the truth of Maralinga than the Menzies government before it, albeit for different reasons. But the rising voices of aggrieved military veterans and the advocacy of a small number of politicians such as Tom Uren provided new sources. The markedly different ways the British tests were covered by journalists in the two eras can be explained largely by the approach of the media and the anger of those harmed by the tests, not by changes to the operation of government. The journalists did a much better job in the later era, forcing a lot of the story into the light.

In the saga of nuclear colonialism portrayed in this book, a non-nuclear nation ceded part of its territory to an emerging nuclear nation to test the most destructive weapons ever invented. Australia provided the site, the political backing, many of the running costs of the Maralinga range and some of the logistics and military personnel. But the UK was always in charge. The absence of close contemporary scrutiny of these tests by either the Australian Government or the media allowed the test authorities to conduct experiments of exceptionally high risk and lasting danger. Many hundreds of Indigenous people lost access to their homelands and their traditional ways of life, swept away from the desert test sites like detritus. Military personnel from all the countries involved, but especially those of Britain itself, were exposed to radiation that may have made them ill. The test series included particularly dangerous experiments that left significant radioactive contamination at Maralinga. The nuclear tests were not subjected to the media scrutiny and analysis befitting their importance until many years later. In fact, the British nuclear tests are among the most significant events

in Australia's history not subjected to contemporary media scrutiny.

What are we to make of the events at Maralinga in the 1950s and 1960s? Australia was not a nuclear power. The nation was in a highly ambiguous position – it was the staging ground for nuclear weapons testing, but the tests themselves were run with obsessive secrecy and control by another nation, the 'mother country' herself. This made Australia, at least initially, curiously powerless and inept in dealing with the tests. The absence of media coverage and public debate created a gap in most people's understanding of Maralinga, making it in many ways a uniquely tangled national issue, still obscure and perplexing. The fallout from nuclear colonialism in Australia was plutonium-soaked land, certainly, but also growing recognition of the risks inherent in abdicating control over the nation's destiny. The mysteries of Maralinga and its toxic legacy continue to haunt Australia as the red dust of the old desert test site still swirls and the thunder echoes across the plain.